

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for the formation of a contact surface having good electrical conductivity on a support bar of an aluminium cathode used in electrolysis, comprising:

- i) attaching a copper contact piece onto the end of the support bar;
- ii) ~~immersing the cathode plate in an electrolysis cell and supporting the support bar by its ends on the sides of the electrolysis cell so that the contact piece is located on top of a busbar, the lower surface of the contact piece touching the electrolysis cell busbar forming a contact surface;~~
- [[iii]]ii) forming a transmission layer on the area of the [[the]] contact surface; and
- [[iv]]iii) coating the contact surface with a silver or silver alloy having a thickness of 0.5 - 2 mm by using soldering or thermal spraying technique,

wherein the support bar of an aluminum cathode used in electrolysis is for immersing the cathode plate in an electrolysis cell and supporting the support bar by its ends on the sides of the electrolysis cell so that the contact piece is located on top of a busbar, the lower surface of the contact piece touching the electrolysis cell busbar forming a contact surface, and the transmission layer and the coating form a metallurgical joint with the copper contact piece.

2. (previously presented) The method according to claim 1, wherein the transmission layer is tin or a tin-dominant layer.

3- 4. (cancelled)

5. (previously presented) The method according to claim 1 wherein the thermal spraying technique is based on gas combustion.

6. (previously presented) The method according to claim 1, wherein the thermal spraying technique is high velocity oxy-fuel spraying.

7. (previously presented) The method according to claim 1, wherein silver or silver alloy is in powder form.

8. (previously presented) The method according to claim 1, wherein the thermal spraying technique is flame spraying.

9. (previously presented) The method according to claim 1, wherein silver or silver alloy is in wire form.

10. (previously presented) The method according to claim 1, wherein the contact surface is subjected to heat treatment after coating.

11. (currently amended) A method for repairing a contact surface of an aluminium cathode support bar used in electrolysis, comprising:

i) attaching a copper contact piece to one end of the support bar;

ii) ~~immersing a cathode plate into an electrolysis cell;~~

iii) ~~supporting the contact piece the support bar on the electrolysis cell busbar;~~

[[iv]]ii) straightening out linearly the contact surface of the support bar contact piece, or lower surface;

[[v]]iii) forming a transmission layer of tin on the lower surface;

[[vi]]iv) coating the contact surface by using a soldering or thermal spraying technique with silver or silver alloy having a thickness of 0.5 - 2 mm; and

[[vii]]v) forming a metallurgical joint with copper, tin and silver or silver alloy coating,

wherein the support bar of the contact piece is supported on the electrolysis cell busbar and the cathode is immersed into an electrolysis cell.

12. (currently amended) A method for repairing a contact surface of an aluminium cathode support bar used in electrolysis, comprising:

- i) attaching a copper contact piece to one end of the support bar;
- ii) furnishing the lower edge of the contact piece with a notch;
- ~~iii) immersing the cathode plate into an electrolysis cell;~~
- ~~iv) supporting the support bar on the electrolysis cell busbar at the notch, wherein the inclined sides of the notch act as the contact surface of the support bar contact piece;~~
- [[v]]iii) straightening out linearly the inclined sides of the notch;
- [[vi]]iv) forming a transmission layer of tin on the sides;
- [[vii]]v) coating the contact surface by using soldering or thermal spraying technique with silver or silver alloy having a thickness of 0.5 - 2 mm; and
- [[viii]]vi) forming a metallurgical joint with the copper, tin and silver or silver alloy coating,

wherein the support bar of the contact piece is supported on the electrolysis cell busbar and the cathode is immersed into an electrolysis cell.

13. (currently amended) A support bar for an aluminium cathode used in electrolysis, where a cathode plate of the cathode is meant to be immersed in an electrolysis cell and the cathode support bar is to be supported at its ends on the edge of the electrolysis cell, so that a contact piece of copper is attached to one end of the support bar, wherein the area of the lower surface of the support bar contact piece, the contact surface touching the busbar,

comprising a silver or silver alloy coating having a thickness of 0.5 - 2 mm and before coating, the contact surface comprises a transmission layer, wherein the silver or silver alloy coating forms a metallurgical joint with the transmission layer and the copper of the contact piece.

14. (previously presented) The support bar according to claim 13, wherein the transmission layer is tin or a tin-dominant alloy.

15. (previously presented) The support bar according to claim 13 wherein the silver or silver alloy layer is formed using soldering technique.

16. (previously presented) The support bar according to claim 13 wherein the silver or silver alloy layer is formed using thermal spraying technique.